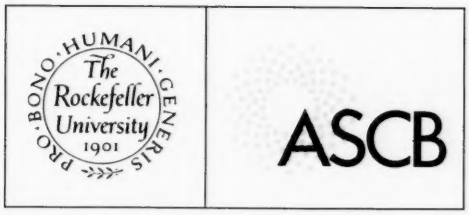
The Journal of Cell Biology

Volume 126, 1994



Edited in cooperation with
The American Society for Cell Biology
Published semimonthly by
The Rockefeller University Press
Copyediting and Production
Suzanne M. Runyan,
Effie Janulis,
Linda Thrasybule, and
Davide R. Dickson

Editor-in-Chief

Norton B. Gilula

Associate Editors

Richard G. W. Anderson
Don W. Cleveland
Werner Franke
Elaine Fuchs
Randy Schekman
Kenneth M. Yamada

Editorial Board

Vann Bennett
Paul Bornstein
Marianne Bronner-Fraser
Eric J. Brown
Graham Carpenter
Nam-Hai Chua
John Cooper
Bruce Cunningham
Caroline Damsky
Scott Emr
Harold P. Erickson
Larry Gerace
Mary Jane Gething
Hans Geuze
Larry Goldstein
Alan Hall
Alan F. Horwitz
Hynda Kleinman
Susan Lindquist
Joan Massague
Frederick Maxfield
Jacopo Meldolesi
Ira Mellman
Ron Milligan
Timothy J. Mitchison
Andrew Murray
W. James Nelson
Walter Neupert
Eric N. Olsen
Suzanne Pfeffer
Tom A. Rapoport
Louis F. Reichardt
Daniel B. Rifkin
Mark Rose
Richard Rotundo
Richard Scheller
Sandra Schmid
Victor Small
Paul W. Sternberg
Murray Stewart
Ron Vale
Klaus Von der Mark
Frank S. Walsh
Helen Lu Yin

Copyright © 1994 by The Rockefeller University Press

Contents:

Volume 126, Number 1, July 1994

Mini-reviews

1 **Agrin-induced clustering of acetylcholine receptors: A cytoskeletal link.**
W. Hoch, J. T. Campanelli, and R. H. Scheller

5 **Tumor necrosis factor receptor-mediated signaling pathways.**
R. A. Heller and M. Krönke

Regular Articles

11 **Differential interaction of splicing snRNPs with coiled bodies and interchromatin granules during mitosis and assembly of daughter cell nuclei.**
J. A. Ferreira, M. Carmo-Fonseca, and A. I. Lamond

25 **Retention of p63 in an ER–Golgi intermediate compartment depends on the presence of all three of its domains and on its ability to form oligomers.**
A. Schweizer, J. Rohrer, H.-P. Hauri, and S. Kornfeld

41 **Quality control in the secretory pathway: Retention of a misfolded viral membrane glycoprotein involves cycling between the ER, intermediate compartment, and Golgi apparatus.**
C. Hammond and A. Helenius

53 **Retrograde transport from the Golgi complex to the ER of both shiga toxin and the nontoxic shiga B-fragment is regulated by butyric acid and cAMP.**
K. Sandvig, M. Ryd, Ø. Garred, E. Schweda, P. K. Holm, and B. van Deurs

65 **Isolation and characterization of mutant CHO cell lines with compartment-specific resistance to brefeldin A.**
J.-P. Yan, M. E. Colon, L. A. Beebe, and P. Melançon

77 **Distinct molecular mechanisms form protein sorting within immature secretory granules of pancreatic β-cells.**
R. Kuliawat and P. Arvan

87 **G-protein ligands inhibit in vitro reactions of vacuole inheritance.**
A. Haas, B. Conradt, and W. Wickner

99 **Determination of four biochemically distinct, sequential stages during vacuole inheritance in vitro.**
B. Conradt, A. Haas, and W. Wickner

111 **Characterization of caveolin-rich membrane domains isolated from an endothelial-rich source.**
M. P. Lisanti, P. E. Scherer, J. Vidugiriene, Z. Tang, A. Hermanowski-Vosatka, Y.-H. Tu, R. F. Cook, and M. Sargiacomo

127 **Purification and characterization of smooth muscle cell caveolae.**
W.-J. Chang, Y. Ying, K. G. Rothberg, N. M. Hooper, A. J. Turner, H. A. Gambliel, J. De Gunzburg, S. M. Mumby, A. G. Gilman, and R. G. W. Anderson

139 **The types II and III transforming growth factor-β receptors form homo-oligomers.**
Y. I. Henis, A. Moustakas, H. Y. Lin, and H. F. Lodish

155 **Endocytosis of a cytotoxic human high density lipoprotein results in disruption of acidic intracellular vesicles and subsequent killing of African trypanosomes.**
K. M. Hager, M. A. Pierce, D. R. Moore, E. M. Tytler, J. D. Esko, and S. L. Hajduk

169 **Crowding-induced organization of cytoskeletal elements: II. Dissolution of spontaneously formed filament bundles by capping proteins.**
T. L. Madden and J. Herzfeld

175 **The *Chlamydomonas FLA10* gene encodes a novel kinesin-homologous protein.**
Z. Walther, M. Vashishtha, and J. L. Hall

189 **Feedback control of the metaphase–anaphase transition in sea urchin zygotes: Role of maloriented chromosomes.**
G. Sluder, F. J. Miller, E. A. Thompson, and D. E. Wolf

199 **Localization of the *mei-1* gene product of *Caenorhabditis elegans*, a meiotic-specific spindle component.**
S. Clark-Maguire and P. E. Mains

211 **Fetal endoderm primarily holds the temporal and positional information required for mammalian intestinal development.**
I. Duluc, J.-N. Freund, C. Leberquier, and M. Kedinger

223 **Expression of hepatic transcription factors during liver development and oval cell differentiation.**
P. Nagy, H. C. Bisgaard, and S. S. Thorgeirsson

235 **Glycosphingolipid antigens in cultured microvascular bovine brain endothelial cells: Sulfoglucuronosyl paragloboside as a target of monoclonal IgM in demyelinative neuropathy.**
T. Kanda, H. Yoshino, T. Ariga, M. Yamawaki, and R. K. Yu

247 **Spatial and temporal relationships between cadherins and PECAM-1 in cell–cell junctions of human endothelial cells.**
O. Ayalon, H. Sabanai, M.-G. Lampugnani, E. Dejana, and B. Geiger

259 **Induction of cell migration by pro-urokinase binding to its receptor: Possible mechanism for signal transduction in human epithelial cells.**
N. Busso, S. K. Masur, D. Lazega, S. Waxman, and L. Ossowski

271 **Activation of the $\alpha 4\beta 1$ integrin through the $\beta 1$ subunit induces recognition of the RGDS sequence in fibronectin.**
P. Sánchez-Aparicio, C. Dominguez-Jiménez, and A. Garcia-Pardo

---

Volume 126, Number 2, July 1994

Mini-review

285 **The fimbrin and alpha-actinin footprint on actin.**
P. Matsudaira

Regular Articles

289 **Dynamic changes in the higher-level chromatin organization of specific sequences revealed by in situ hybridization to nuclear halos.**
M. G. Gerdes, K. C. Carter, P. T. Moen, Jr., and J. B. Lawrence

305 **Role of the chaperonin cofactor Hsp10 in protein folding and sorting in yeast mitochondria.**
J. Höhfeld and F. U. Hartl

317 **Sorting signals in the MHC class II invariant chain cytoplasmic tail and transmembrane region determine trafficking to an endocytic processing compartment.**
C. G. Odorizzi, I. S. Trowbridge, L. Xue, C. R. Hopkins, C. D. Davis, and J. F. Collawn

331 **A signal located within amino acids 1-27 of GAD65 is required for its targeting to the Golgi complex region.**
M. Solimena, R. Dirkx, Jr., M. Radzynski, O. Mundigl, and P. De Camilli

343 **The clathrin heavy chain functions in sorting and secretion of lysosomal enzymes in *Dictyostelium discoideum*.**
T. Ruscetti, J. A. Cardelli, M. L. Niswonger, and T. J. O'Halloran

353 **Cysteine^3 of Src family protein tyrosine kinases determines palmitoylation and localization in caveolae.**
A. M. Shenoy-Scaria, D. J. Dietzen, J. Kwong, D. C. Link, and D. M. Lublin

365 **Mutations in a signal sequence for the thylakoid membrane identify multiple protein transport pathways and nuclear suppressors.**
T. A. Smith and B. D. Kohorn

375 **Rat myr 4 defines a novel subclass of myosin-I: Identification, distribution, localization, and mapping of calmodulin binding sites with differential calcium sensitivity.**
M. Bähler, R. Kroschewski, H.-E. Stöffler, and T. Behrmann

391 **ERM family members as molecular linkers between the cell surface glycoprotein CD44 and actin-based cytoskeletons.**
S. Tsukita, K. Oishi, N. Sato, J. Sagara, A. Kawai, and S. Tsukita

403 **Ultrastructural analysis of the dynactin complex: An actin-related protein is a component of a filament that resembles F-actin.**
D. A. Schafer, S. R. Gill, J. A. Cooper, J. E. Heuser, and T. A. Schroer

413 **Actin mutations that show suppression with fimbrin mutations identify a likely fimbrin-binding site on actin.**
J. E. Honts, T. S. Sandrock, S. M. Brower, J. L. O'Dell, and A. E. M. Adams

423 **Mapping actin surfaces required for functional interactions in vivo.**
D. A. Holtzman, K. F. Wertman, and D. G. Drubin

433 **Determination of the α-actinin–binding site on actin filaments by cryoelectron microscopy and image analysis.**
A. McGough, M. Way, and D. DeRosier

445 **Differential organization of desmin and vimentin in muscle is due to differences in their head domains.**
R. B. Cary and M. W. Klymkowsky

457 **Stress relaxation of fibroblasts activates a cyclic AMP signaling pathway.**
Y. He and F. Grinnell

465 **Upregulation of the low density lipoprotein receptor at the blood–brain barrier: Intercommunications between brain capillary endothelial cells and astrocytes.**
B. Dehouck, M.-P. Dehouck, J.-C. Fruchart, and R. Cecchelli

475 **v-*src* Transformation of rat embryo fibroblasts. Inefficient conversion to anchorage-independent growth involves heterogeneity of primary cultures.**
N. Tavoloni, H. Inoue, H. Sabe, and H. Hanafusa

485 **Expression and functional interaction of hepatocyte growth factor–scatter factor and its receptor c-*met* in mammalian brain.**
W. Jung, E. Castren, M. Odenthal, G. F. Vande Woude, T. Ishii, H.-P. Dienes, D. Lindholm, and P. Schirmacher

495 **Association of basonuclin with ability of keratinocytes to multiply and with absence of terminal differentiation.**
H. Tseng and H. Green

507 **The bovine desmocollin family: A new gene and expression patterns reflecting epithelial cell proliferation and differentiation.**
P. K. Legan, K. K. M. Yue, M. A. J. Chidgey, J. L. Holton, R. W. Wilkinson, and D. R. Garrod

519 **Regulation of C-cadherin function during activin induced morphogenesis of *Xenopus* animal caps.**
W. M. Brieher and B. M. Gumbiner

529 **Involvement of the "I" Domain of LFA-1 in selective binding to ligands ICAM-1 and ICAM-3.**
R. C. Landis, A. McDowall, C. L. L. Holness, A. J. Littler, D. L. Simmons, and N. Hogg

539 **Cell surface annexin II is a high affinity receptor for the alternatively spliced segment of tenascin-C.**
C. Y. Chung and H. P. Erickson

549 **Natural ligands of the B cell adhesion molecule CD22β can be masked by 9-*O*-acetylation of sialic acids.**
E. R. Sjoberg, L. D. Powell, A. Klein, and A. Varki

563 **67-kD elastin-binding protein is a protective "companion" of extracellular insoluble elastin and intracellular tropoelastin.**
A. Hinek and M. Rabinovitch

575 **Hyaluronan and the hyaluronan receptor RHAMM promote focal adhesion turnover and transient tyrosine kinase activity.**
C. L. Hall, C. Wang, L. A. Lange, and E. A. Turley

589 **ADDITIONS AND CORRECTIONS**

Volume 126, Number 3, August 1994

591 **Remodeling sperm chromatin in *Xenopus laevis* egg extracts: The role of core histone phosphorylation and linker histone B4 in chromatin assembly.**
S. Dimitrov, M. C. Dasso, and A. P. Wolffe

603 **Interactions and three-dimensional localization of a group of nuclear pore complex proteins.**
N. Panté, R. Bastos, I. McMorrow, B. Burke, and U. Aebi

619 **Genetic and physical interactions between Srp1p and nuclear pore complex proteins Nup1p and Nup2p.**
K. D. Belanger, M. A. Kenna, S. Wei, and L. I. Davis

631 **Kinetoplast DNA replication: Mechanistic differences between *Trypanosoma brucei* and *Crithidia fasciculata*.**
M. L. Ferguson, A. F. Torri, D. Pérez-Morga, D. C. Ward, and P. T. Englund

641 **The configuration of DNA replication sites within the *Trypanosoma brucei* kinetoplast.**
D. R. Robinson and K. Gull

649 **Isolation and characterization of *Saccharomyces cerevisiae* mRNA transport-defective (*mtr*) mutants.**
T. Kadowaki, S. Chen, M. Hitomi, E. Jacobs, C. Kumagai, S. Liang, R. Schneiter, D. Singleton, J. Wisniewska, and A. M. Tartakoff

661 **Molecular motors are differentially distributed on Golgi membranes from polarized epithelial cells.**
K. R. Fath, G. M. Trimbur, and D. R. Burgess

677 **Gsα stimulates transcytosis and apical secretion in MDCK cells through cAMP and protein kinase A.**
S. H. Hansen and J. E. Casanova

689 **Transformation of *Drosophila melanogaster* with the wild-type myosin heavy-chain gene: Rescue of mutant phenotypes and analysis of defects caused by overexpression.**
R. M. Cripps, K. D. Becker, M. Mardahl, W. A. Kronert, D. Hodges, and S. I. Bernstein

701 **Transition in cardiac contractile sensitivity to calcium during the in vitro differentiation of mouse embryonic stem cells.**
J. M. Metzger, W.-I. Lin, and L. C. Samuelson

713 **Lipids trigger changes in the elasticity of the cytoskeleton in plant cells: A cell optical displacement assay for live cell measurements.**
S. Grabski, X. G. Xie, J. F. Holland, and M. Schindler

727 **Regulation of 22S dynein by a 29-kD light chain.**
K. Barkalow, T. Hamasaki, and P. Satir

737 **Functional reconstitution of *Chlamydomonas* outer dynein arms from α–β, and γ subunits: Requirement of a third factor.**
S. Takada and R. Kamiya

747 **Activation of protein kinase C isozymes is associated with post-mitotic events in intestinal epithelial cells in situ.**
M. L. Saxon, X. Zhao, and J. D. Black

765 **NADPH–oxidase expression and in situ production of superoxide by osteoclasts actively resorbing bone.**
M. J. Steinbeck, W. H. Appel, Jr., A. J. Verhoeven, and M. J. Karnovsky

773 **Identification of a DNA sequence involved in osteoblast-specific gene expression via interaction with helix-loop-helix (HLH)-type transcription factors.**
M. Tamura and M. Noda

783 **Isolation of a neural chondroitin sulfate proteoglycan with neurite outgrowth promoting properties.**
A. Faissner, A. Clement, A. Lochter, A. Streit, C. Mandl, and M. Schachner

801 **Inhibition of lysophosphatidate- and thrombin-induced neurite retraction and neuronal cell rounding by ADP ribosylation of the small GTP-binding protein Rho.**
K. Jalink, E. J. van Corven, T. Hengeveld, N. Morii, S. Narumiya, and W. H. Moolenaar

811 **Localization of a heterotrimeric G protein γ subunit to focal adhesions and associated stress fibers.**
C. A. Hansen, A. G. Schroering, D. J. Carey, and J. D. Robishaw

---

Volume 126, Number 4, August 1994

Mini-review

821 **What are the basic functions of microfilaments? Insights from studies in budding yeast.**
A. Bretscher, B. Drees, E. Harsay, D. Schott, and T. Wang

Regular Articles

827 **Chromatin condensation during apoptosis is accompanied by degradation of lamin A+B, without enhanced activation of cdc2 kinase.**
F. A. Oberhammer, K. Hochegger, G. Fröschl, R. Tiefenbacher, and M. Pavelka

839 **Alternative splicing introduces a nuclear localization signal that targets multifunctional CaM kinase to the nucleus.**
M. Srinivasan, C. F. Edman, and H. Schulmar

853 **Yeast *NPI46* encodes a novel prolyl *cis-trans* isomerase that is located in the nucleolus.**
X. Shan, Z. Xue, and T. Mélèse

863 **Single mRNAs visualized by ultrastructural in situ hybridization are principally localized at actin filament intersections in fibroblasts.**
G. J. Bassell, C. M. Powers, K. L. Taneja, and R. H. Singer

877 **In vivo analysis of the stability and transport of nuclear poly(A)$^+$ RNA.**
S. Huang, T. J. Deerinck, M. H. Ellisman, and D. L. Spector

901 **Fluorescence photooxidation with eosin: A method for high resolution immunolocalization and in situ hybridization detection for light and electron microscopy.**
T. J. Deerinck, M. E. Martone, V. Lev-Ram, D. P. L. Green, R. Y. Tsien, D. L. Spector, S. Huang, and M. H. Ellisman

911 **Nuclear congression and membrane fusion: Two distinct events in the yeast karyogamy pathway.**
L. J. Kurihara, C. T. Beh, M. Latterich, R. Schekman, and M. D. Rose

925 **Binding of ribosomes to the rough endoplasmic reticulum mediated by the Sec61p-complex.**
K.-U. Kalies, D. Görlich, and T. A. Rapoport

935 **Sec72p contributes to the selective recognition of signal peptides by the secretory polypeptide translocation complex.**
D. Feldheim and R. Schekman

945 ***N*-ethylmaleimide–sensitive fusion protein: A trimeric ATPase whose hydrolysis of ATP is required for membrane fusion.**
S. W. Whiteheart, K. Rossnagel, S. A. Buhrow, M. Brunner, R. Jaenicke, and J. E. Rothman

955 ***Dictyostelium discoideum* mutants with conditional defects in phagocytosis.**
C. J. Cohen, R. Bacon, M. Clarke, K. Joiner, and I. Mellman

967 **Major histocompatibility class II molecules induce the formation of endocytic MIIC-like structures.**
J. Calafat, M. Nijenhuis, H. Janssen, A. Tulp, S. Dusseljee, R. Wubbolts, and J. Neefjes

979 **A double leucine within the GLUT4 glucose transporter COOH-terminal domain functions as an endocytosis signal.**
S. Corvera, A. Chawla, R. Chakrabarti, M. Joly, J. Buxton, and M. P. Czech

991 **Structural requirements and sequence motifs for polarized sorting and endocytosis of LDL and Fc receptors in MDCK cells.**
K. Matter, E. M. Yamamoto, and I. Mellman

1005 **Actin filament organization in activated mast cells is regulated by heterotrimeric and small GTP-binding proteins.**
J. C. Norman, L. S. Price, A. J. Ridley, A. Hall, and A. Koffer

1017 **Stable expression of heterologous microtubule-associated proteins (MAPs) in Chinese hamster ovary cells: Evidence for differing roles of MAPs in microtubule organization.**
S. Barlow, M. L. Gonzalez-Garay, R. R. West, J. B. Olmsted, and F. Cabral

1031 **Phosphorylation on carboxyl terminus domains of neurofilament proteins in retinal ganglion cell neurons in vivo: Influences on regional neurofilament accumulation, interneurofilament spacing, and axon caliber.**
R. A. Nixon, P. A. Paskevich, R. K. Sihag, and C. Y. Thayer

1047 **Reconstitution of native-type noncrystalline lens fiber gap junctions from isolated hemichannels.**
J. Kistler, K. Goldie, P. Donaldson, and A. Engel

1059 **The protein bcl-2α does not require membrane attachment, but two conserved domains to suppress apoptosis.**
C. Borner, I. Martinou, C. Mattmann, M. Irmler, E. Schaerer, J.-C. Martinou, and J. Tschopp

1069 **Autocrine signals enable chondrocytes to survive in culture.**
Y. Ishizaki, J. F. Burne, and M. C. Raff

1079 **Production of hydrogen peroxide by transforming growth factor β1 and its involvement in induction of egr-1 in mouse osteoblastic cells.**
M. Ohba, M. Shibanuma, T. Kuroki, and K. Nose

1089 **The cytoplasmic domain of the myelin Po protein influences the adhesive interactions of its extracellular domain.**
M.-H. Wong and M. T. Filbin

1099 **Ankyrin binding domain of CD44 (GP85) is required for the expression of hyaluronic acid–mediated adhesion function.**
V. B. Lokeshwar, N. Fregien, and L. Y. W. Bourguignon

1111 **β2 Integrin-dependent protein tyrosine phosphorylation and activation of the *fgr* protein tyrosine kinase in human neutrophils.**
G. Berton, L. Fumagalli, C. Laudanna, and C. Sorio

Volume 126, Number 5, September 1994

Mini-review

1123 **Insulin resistance, diabetes and the insulin-regulated trafficking of GLUT-4.**
D. E. James and R. C. Piper

Regular Articles

1127 **The COOH-terminal ends of internal signal and signal-anchor sequences are positioned differently in the ER translocase.**
I. Nilsson, P. Whitley, and G. von Heijne

1133 **Characteristics of endoplasmic reticulum–derived transport vesicles.**
M. F. Rexach, M. Latterich, and R. W. Schekman

1149 **pH-Independent and -dependent cleavage of proinsulin in the same secretory vesicle.**
L. Orci, P. Halban, A. Perrelet, M. Amherdt, M. Ravazzola, and R. G. W. Anderson

1157 **The cytoplasmic domain mediates localization of furin to the *trans*-Golgi network en route to the endosomal/lysosomal system.**
H. Bosshart, J. Humphrey, E. Deignan, J. Davidson, J. Drazba, L. Yuan, V. Oorschot, P. J. Peters, and J. S. Bonifacino

1173 **Lysosomes can fuse with a late endosomal compartment in a cell-free system from rat liver.**
B. M. Mullock, J. H. Perez, T. Kuwana, S. R. Gray, and J. P. Luzio

1183 **Mitochondrial Ca^{2+} homeostasis intact cells.**
R. Rizzuto, C. Bastianutto, M. Brini, M. Murgia, and T. Pozzan

1195 **Antibodies probe for folded monomeric myosin in relaxed and contracted smooth muscle.**
A. Horowitz, K. M. Trybus, D. S. Bowman, and F. S. Fay

1201 **Cellular titin localization in stress fibers and interaction with myosin II filaments in vitro.**
K. J. Eilertsen, S. T. Kazmierski, and T. C. S. Keller III

1211 **β-Actin mRNA localization is regulated by signal transduction mechanisms.**
V. M. Latham, Jr., E. H. Kislauskis, R. H. Singer, and A. F. Ross

1221 **Serum-induced signal transduction determines the peripheral location of β-actin mRNA within the cell.**
M. A. Hill, L. Schedlich, and P. Gunning

1231 **Characterization of an F-actin-binding domain in the cytoskeletal protein vinculin.**
A. R. Menkel, M. Kroemker, P. Bubeck, M. Ronsiek, G. Nikolai, and B. M. Jockusch

1241 **Elements of error correction in mitosis: microtubule capture, release, and tension.**
R. B. Nicklas and S. C. Ward

1255 **The *bop2-1* mutation reveals radial asymmetry in the inner dynein arm region of *Chlamydomonas reinhardtii*.**
S. J. King, W. B. Inwood, E. T. O'Toole, J. Power, and S. K. Dutcher

1267 **Stimulation of a glycosyl–phosphatidylinositol-specific phospholipase by insulin and the sulfonylurea, glimepiride, in rat adipocytes depends on increased glucose transport.**
G. Müller, E. A. Dearey, A. Korndörfer, and W. Bandlow

1277 **Induction of tyrosine phosphorylation during ICAM-3 and LFA-1-mediated intercellular adhesion, and its regulation by the CD45 tyrosine phosphatase.**
A. G. Arroyo, M. R. Campanero, P. Sánchez-Mateos, J. M. Zapata, M. A. Ursa, M. A. del Pozo, and F. Sánchez-Madrid

1287 **Single subunit chimeric integrins as mimics and inhibitors of endogenous integrin functions in receptor localization cell spreading and migration, and matrix assembly.**
S. E. LaFlamme, L. A. Thomas, S. S. Yamada, and K. M. Yamada

1299 **Altered localization and cytoplasmic domain binding properties of tyrosine-phosphorylated β_1 integrin.**
M. W. Johansson, E. Larsson, B. Lüning, E. B. Pasquale, and E. Ruoslahti

1311 **Thyroxine is the serum factor that regulates morphogenesis of columnar cartilage from isolated chondrocytes in chemically-defined medium.**
R. T. Ballock and A. H. Reddi

1319 **An old enzyme with a new function: purification and characterization of a distinct matrix-degrading metalloproteinase in rat kidney cortex and its identification as meprin.**
G. P. Kaushal, P. D. Walker, and S. V. Shah

Volume 126, Number 6, September 1994

1331 **An RNase-sensitive particle containing *Drosophila melanogaster* DNA topoisomerase II.**
V. H. Meller, M. McConnell, and P. A. Fisher

1341 **Inhibition of DNA topoisomerase II by ICRF-193 induces polyploidization by uncoupling chromosome dynamics from other cell cycle events.**
R. Ishida, M. Sato, T. Narita, K. R. Utsumi, T. Nishimoto, T. Morita, H. Nagata, and T. Andoh

1353 **Localization of HIV RNA in mitochondria of infected cells: Potential role in cytopathogenicity.**
M. Somasundaran, M. L. Zapp, L. K. Beattie, L. Pang, K. S. Byron, G. J. Bassell, J. L. Sullivan, and R. H. Singer

1361 **Regulation of mitochondrial morphology and inheritance by Mdm10p, a protein of the mitochondrial outer membrane.**
L. F. Sogo and M. P. Yaffe

1375 ***MMM1* encodes a mitochondrial outer membrane protein essential for establishing and maintaining the structure of yeast mitochondria.**
S. M. Burgess, M. Delannoy, and R. E. Jensen

1393 **Guanine nucleotide dissociation inhibitor is essential for Rab1 function in budding from the endoplasmic reticulum and transport through the Golgi stack.**
F. Peter, C. Nuoffer, S. N. Pind, and W. E. Balch

1407 **Microsomal aldehyde dehydrogenase is localized to the endoplasmic reticulum via its carboxyl-terminal 35 amino acids.**
R. Masaki, A. Yamamoto, and Y. Tashiro

1421 **Ponticulin is an atypical membrane protein.**
A. L. Hitt, T. H. Lu, and E. J. Luna

1433 **Ponticulin is the major high affinity link between the plasma membrane and the cortical actin network in *Dictyostelium*.**
A. L. Hitt, J. H. Hartwig, and E. J. Luna

1445 **Ezrin has a COOH-terminal actin-binding site that is conserved in the ezrin protein family.**
O. Turunen, T. Wahlström, and A. Vaheri

1455 **Microtubule dynamics in fish melanophores.**
V. I. Rodionov, S.-S. Lim, V. I. Gelfand, and G. G. Borisy

1465 **Human γ-tubulin functions in fission yeast.**
T. Horio and B. R. Oakley

1475 ***Drosophila* cytoplasmic dynein, a microtubule motor that is asymmetrically localized in the oocyte.**
M. G. Li, M. McGrail, M. Serr, and T. S. Hays

1495 **Mutations in the *SUP-PF-1* locus of *Chlamydomonas reinhardtii* identify a regulatory domain in the β-dynein heavy chain.**
M. E. Porter, J. A. Knott, L. C. Gardner, D. R. Mitchell, and S. K. Dutcher

1509 **Orientation of spindle axis and distribution of plasma membrane proteins during cell division in polarized MDCKII cells.**
S. Reinsch and E. Karsenti

1527 **Spatial changes in calcium signaling during the establishment of neuronal polarity and synaptogenesis.**
C. Verderio, S. Coco, G. Fumagalli, and M. Matteoli

1537 **CRAC, a cytosolic protein containing a pleckstrin homology domain, is required for receptor and G protein–mediated activation of adenylyl cyclase in *Dictyostelium*.**
R. Insall, A. Kuspa, P. J. Lilly, G. Shaulsky, L. R. Levin, W. F. Loomis, and P. Devreotes

1547 **The mouse ileal lipid-binding protein gene: A model for studying axial patterning during gut morphogenesis.**
M. W. Crossman, S. M. Hauft, and J. I. Gordon

1565 **Mitogen-activated protein kinases mediate changes in gene expression, but not cytoskeletal organization associated with cardiac muscle cell hypertrophy.**
J. Thorburn, J. A. Frost, and A. Thorburn

1573 **Overexpressing sperm surface β1,4-galactosyltransferase in transgenic mice affects multiple aspects of sperm–egg interactions.**
A. Youakim, H. J. Hathaway, D. J. Miller, X. Gong, and B. D. Shur

1585 **The role of protein tyrosine phosphorylation in integrin-mediated gene induction in monocytes.**
T. H. Lin, A. Yurochko, L. Kornberg, J. Morris, J. J. Walker, S. Haskill, and R. L. Juliano

1595 **Recombinant Vgr-1/BMP-6–expressing tumors induce fibrosis endochondral bone formation in vivo.**
S. E. Gitelman, M. S. Kobrin, J.-Q. Ye, A. R. Lopez, A. Lee, and R. Derynck

1611 **Parathyroid hormone–related peptide (PTHrP) depleted mice show abnormal epiphyseal cartilage development and altered endochondral bone formation.**
N. Amizuka, H. Warshawsky, J. E. Henderson, D. Goltzman, and A. C. Karaplis

1625 ADDITIONS AND CORRECTIONS

1627 ADDITIONS AND CORRECTIONS

1629 AUTHOR INDEX FOR VOLUME 126

1637 SUBJECT INDEX FOR VOLUME 126